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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,938	12/06/2000	John Patrick Lemmon	RD-28,051	8817

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH CENTER
PATENT DOCKET RM. 4A59
PO BOX 8, BLDG. K-1 ROSS
NISKAYUNA, NY 12309

EXAMINER

SODERQUIST, ARLEN

ART UNIT

PAPER NUMBER

1743

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/729,938

Applicant(s)
Lemmon et al.

Examiner
Arlen Soderquist

Art Unit
1743



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 2-3 6) ☐ Other:

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 36-37 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by each of Brunelle (Molecular Reports, 1991), Kashiwagi (JP 11-158261) or Sakashita (US 5,026,817 or US 5,646,233 hereinafter referred to as respectively Sakashita'817 and Sakashita'233). It should be noted that while these references are specifically used in this rejection many of the references of record have disclosure anticipatory of polycarbonate articles.

In the paper Brunelle teaches low temperature reactions of o-nitrophenyl carbonates. Bis(o-nitrophenyl)carbonate (I) is polycondensed with bisphenol A or other diols to prepare polycarbonates. Bis(o-nitrophenyl)carbonate can be used in more mild conditions than carbonic acid. The kinetics of the polycondensation as a function of different catalysts are examined. Table 3 shows the various catalyst combinations including those with metal salts. At least the polymers made using the metal salts are anticipatory of the article claims.

In the published application Kashiwagi teaches manufacture of aromatic polycarbonates using transition metal compounds and alkali and/or alkaline metal compounds as catalysts. Title aromatic polycarbonates are manufactured by transesterification of aryl carbonates and aromatic dihydroxy compounds using catalysts containing transition metal compounds and alkali metal and/or alkaline earth metal compounds. Thus, bisphenol A and di-Ph carbonate were polymerized in the presence of Na_2CO_3 and $\text{La}(\text{OH})_3$ to give a copolymer with viscosity-average molecular weight 24,500 and yellowing index 5.4 initially and 1.1 after heating. This product anticipates the above claims.

In the patent Sakashita'817 teaches a process for preparing polycarbonates by melt polycondensation of aromatic dihydroxy compounds and carbonic acid diesters, is characterized by using an aromatic dihydroxy compound and a carbonic acid diester, wherein the combined content of hydrolyzable chlorine in those monomers falls within the particular range. Another

process for preparing polycarbonates according to the invention by melt polycondensation of aromatic dihydroxy compounds and carbonic acid diesters, is characterized by using a catalyst comprising (a) a nitrogen containing basic compound and (b) aromatic dihydroxy compound of an alkali metal or alkaline earth metal compound, or (a) and (b) and (c) boric acid or boric ester. Column 5, line 59 to column 6 line 45 teach the various compounds that can be used for the nitrogen containing and the alkali and alkaline earth metal catalysts. These include tetraalkyl-, aryl- or alkarylammmonium hydroxides such as tetramethylammmonium hydroxide, tetraethylammmonium hydroxide and tetrabutylammmonium hydroxide as the preferred basic nitrogen containing compound. Useful alkali and alkaline earth metal compounds include sodium hydroxide, potassium hydroxide, lithium hydroxide, sodium hydrogencarbonate, potassium hydrogencarbonate, lithium hydrogencarbonate, sodium carbonate, potassium carbonate, lithium carbonate, sodium acetate, potassium acetate, lithium acetate, sodium stearate, potassium stearate, lithium stearate, sodium borohydride, lithium borohydride, sodium borophenylate, sodium benzoate, potassium benzoate, lithium benzoate, disodium hydrogenphosphate, dipotassium hydrogenphosphate, dilithium hydrogenphosphate, disodium salt of BPA, dipotassium salt of BPA, dilithium salt of BPA, sodium phenylate, potassium phenylate, lithium phenylate, calcium hydroxide, barium hydroxide, magnesium hydroxide, strontium hydroxide, calcium hydrogencarbonate, barium hydrogencarbonate, magnesium hydrogencarbonate, strontium hydrogencarbonate, calcium carbonate, barium carbonate, magnesium carbonate, strontium carbonate, calcium acetate, barium acetate, magnesium acetate, strontium acetate, calcium stearate, barium stearate, magnesium stearate and strontium stearate. The examples show several different catalyst compositions producing products that anticipate the above claims.

In the patent Sakashita'233 teaches methods of preparing polycarbonate compositions having outstanding hardness. The polymers are made by polycondensation of aromatic dihydroxy compounds and carbonic acid diesters using catalysts including alkali metal, alkaline earth, basic nitrogen containing compounds and transition metal compounds. These are further enumerated in columns 7-9 and include tetramethylammmonium hydroxide, tetraethylammmonium

hydroxide and tetrabutylammonium hydroxide as the preferred basic nitrogen containing compound. Useful alkali and alkaline earth metal compounds include sodium hydroxide, potassium hydroxide, lithium hydroxide, sodium bicarbonate, potassium bicarbonate, lithium bicarbonate, sodium carbonate, potassium carbonate, lithium carbonate, sodium acetate, potassium acetate, lithium acetate, sodium stearate, potassium stearate, lithium stearate, sodium hydroxyborate, lithium hydroxyborate, sodium phenoxyborate, sodium benzoate, potassium benzoate, lithium benzoate, disodium hydrogen phosphate, dipotassium hydrogen phosphate, dilithium hydrogen phosphate, disodium salts, dipotassium salts, and dilithium salts of bisphenol A, and sodium salts, potassium salts, and lithium salts of phenol, calcium hydroxide, barium hydroxide, magnesium hydroxide, strontium hydroxide, calcium bicarbonate, barium bicarbonate, magnesium bicarbonate, strontium bicarbonate, calcium carbonate, barium carbonate, magnesium carbonate, strontium carbonate, calcium acetate, barium acetate, magnesium acetate, strontium acetate, calcium stearate, barium stearate, magnesium stearate, strontium stearate, etc. These substances may be used in combinations of 2 or more. The transition metal catalysts may be used in combination with the above catalysts and include various compounds of zinc, cadmium, tin, lead, germanium, silicon, antimony, bismuth and titanium. The examples show several different catalyst compositions producing products that anticipate the above claims.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-35 and 38-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakashita'233 as applied to claims 36-37 above, and further in view of Willson (US 6,063,633). Although Sakashita'233 teaches the combination of the various catalyst components, it fails to teach simultaneous testing of catalyst compositions on a substrate.

In the patent Willson teaches a catalyst testing process and apparatus such as a plate is treated with catalyst ingredients to produce cells, spots or pellets holding each of a variety of combinations of the ingredients. These catalyst candidates are then contacted with a potentially reactive feed stream or batch of reactants. The reaction occurring in each cell can be measured by infrared thermography, spectroscopic detection of products or residual reactants, or by sampling followed by analysis to determine the relative efficacy of the catalysts in each combination. Robotic techniques can be employed in producing the cells, spots, pellets, etc. Column 1 lines 27-40 teaches the time and cost savings of this method relative to the prior method in which individual catalyst formulations were handled separately. Column 2, lines 14-22 discusses the variety of supports that can be used including plates with wells. Column 2, lines 56-63 teach the variety of reactions that can be tested including polymerization reactions. The paragraph bridging columns 2-3 teaches the variety of sensing method that can be used including spectroscopic methods such as fluorescence.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to test the catalysts of Sakashita'233 with the method of Willson because comparative analysis and the expected time and cost savings taught by Willson.

5. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686

F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

6. Claims 1-35 and 38-45 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-40 of U.S. Patent No. 6,307,004 in view of Sakashita'233 as set forth above. The instant claims are of a scope that encompasses the patented claims except for the particular process with its catalysts. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the patented method for the polycarbonate of Sakashita'233 because of the volume of potential catalysts and an the ability to obtain polymers through both melt and solution catalysis as taught by Sakashita'233.

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional reference relate to polycarbonate polymerization methods.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arlen Soderquist whose telephone number is (703) 308-3989. The examiner's schedule is variable between the hours of about 5:30 AM to about 5:00 PM on Monday through Thursday and alternate Fridays.

For communication by fax to the organization where this application or proceeding is assigned, (703) 305-7719 may be used for official, unofficial or draft papers. When using this number a call to alert the examiner would be appreciated. Numbers for faxing official papers are 703-872-9310 (before finals), 703-872-9311 (after-final), 703-305-7718, 703-305-5408 and 703-305-5433. The above fax numbers will generally allow the papers to be forwarded to the examiner in a timely manner.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in cursive script, reading "Arlen Soderquist".

March 19, 2003

ARLEN SODERQUIST
PRIMARY EXAMINER